WHAT IS CLAIMED IS:

1. A portable card comprising

a substrate having a predetermined shape; and an accessible embedded storage member having at least one layer of storage material for storing information enclosed by said substrate, said storage member and said substrate being adapted to be transported relative to each other to expose at least a portion said storage member to facilitate processing of stored information and for embedment of said storage member within said substrate.

2. The portable card of claim 1 wherein said storage member is in the form of an elongated strip member.

3. The portable card of claim 1 wherein said storage member is in the form of a circular member.

4. The portable card of claim 1 wherein said substrate has first layer and a second layer each having an obverse side and a converse side operatively coupled to each other with the obverse side of said first layer positioned in an opposed relationship from the converse side of said second layer enabling at least a portion of said first layer to be moveable relative to said second layer and wherein a storage member is located on at least one of the obverse side of said first layer and converse side of said second layer.

5. The portable card of claim 4 wherein first layer and a second layer are pivotally mounted relative to each other enabling movement in a first direction exposing at least a portion of at least one of the storage member located on the obverse side of said first layer and the storage member located on the converse side of said second layer to facilitate processing of stored information and enabling movement in a

direction opposite to said first direction to embed said at least one storage member within said substrate.

6. A portable card adapted to interact with a data processing station when the portable card and a data processing station are moved relative to each other, said data storage device including

a substrate having a predetermined shape; and

an accessible embedded storage member enclosed within said substrate, said accessible storage member having at least one layer of storage material for storing information in a predetermined format for processing by a data processing station, said storage member and said substrate being adapted to be transported relative to each other to expose at least a portion said storage member to a data processing station to facilitate processing of stored information and for embedment of said storage member within said substrate.

7. The portable card of claim 6 wherein said at least one layer of storage material for storing information in a predetermined format is a magnetic medium.

8. The portable card of claim 6 wherein said at least one layer of storage material for storing information in a predetermined format is an optical medium.

9. The portable card of claim 6 wherein said at least one layer of storage material for storing information in a predetermined format is a magneto-optical medium.

10. The portable card of claim 6 wherein said at least one layer of storage material for storing information in a predetermined format is at least one layer of high density, high coercivity magnetic material for storing magnetic signals

11. The portable card of claim 6 further comprising

a relatively hard, abradeable protective coating formed on said magnetic material layer and being selected to have a thickness between a maximum thickness which would materially attenuate magnetic signals passing between said magnetic material layer and a transducer and a minimum thickness enabling said protective coating to be abraded by usage in an ambient natural atmosphere operating environment for removing therefrom a known quantity of the protective coating.

12. The portable card of claim 6 wherein said substrate is moved relative to said data processing station.

13. The portable card of claim 6 wherein said data processing station is moved relative to said substrate.

14. The portable card of claim 6 wherein said data processing station and said substrate are moved relative to each other.

15. A portable card adapted to be used in a card processing system having a data processing station comprising

a substrate having a predetermined shape; and

a removable and reinsertable accessible embedded storage member having at least one layer of storage material for storing information enclosed by said substrate, said storage member and said substrate being adapted to be transported relative to each other to remove and expose at least a portion said storage member to facilitate processing of stored information by a data processing station and for embedment of said storage member within said substrate.

16. The portable card of claim 15 wherein said storage member has at least one layer of high density, high coercivity magnetic material for storing magnetic signals.

17. The portable card of claim 16 wherein said storage member further includes

a relatively hard, abradeable protective coating formed on said magnetic material layer and being selected to have a thickness between a maximum thickness which would materially attenuate magnetic signals passing between said magnetic material layer and a transducer and a minimum thickness enabling said protective coating to be abraded by usage in an ambient natural atmosphere operating environment for removing therefrom a known quantity of the protective coating.

18. The portable card of claim 17 wherein said at least one magnetic material layer is a thin film layer of high density, high coercivity magnetic material having a predetermined magnetic field orientation for storing data.

19. The portable card of claim 17 wherein the protective coating has at least one layer which includes a magnetically permeable, magnetically saturable material.

20. The portable card of claim 17 wherein the protective coating has at least two layers wherein one of said layers includes a magnetically permeable, magnetically saturable material and the other of said layers is a non-magnetic friction reducing layer formed on said one of said layers.

21. The portable card of claim 17 wherein said at least one magnetic material layer is formed of a high density, high coercivity magnetic material having a predetermined magnetic field orientation and wherein said protective coating has at least one layer which includes a magnetically permeable, magnetically saturable material and wherein said data storage device further includes

a non-magnetic material layer positioned between the protective coating and said at least one magnetic material layer, said magnetically permeable, magnetically saturable material being responsive through said non-magnetic layer to predetermined magnetic field orientation to produce a magnetic image field in a direction opposite to said predetermined magnetic field orientation.

22. The portable card of claim 17 said at least one magnetic material layer is formed of a high density, high coercivity magnetic material having a predetermined magnetic field orientation and wherein said protective coating has at least two layers wherein said one of said layers includes a magnetically permeable, magnetically saturable material and the other of said layers is a non-magnetic abrasion friction reducing layer formed on said one of said layers and wherein said data storage device further includes

a non-magnetic material layer positioned between the protective coating and said at least one magnetic material layer, said magnetically permeable, magnetically saturable material being responsive through said non-magnetic layer to predetermined magnetic field orientation to produce a magnetic image field in a direction opposite to said predetermined magnetic field orientation.

23. A portable card adapted to be used in a card processing system having a data processing station comprising

a substrate having a substantially planar and generally rectangular shape; and

at least one removable and reinsertable accessible embedded storage member having at least one layer of storage material for storing information enclosed by said substrate, said storage

member and said substrate being adapted to be transported relative to each other to remove and expose at least a portion said storage member to facilitate processing of stored information by a data processing station and for embedment of said storage member within said substrate.

24 The portable card of claim 23 wherein said at least one removable and reinsertable accessible embedded storage member is generally rectangular in shape.

25 The portable card of claim 23 wherein said at least one removable and reinsertable accessible embedded storage member is generally circular in shape.

26 The portable card of claim 23 wherein said substrate encloses at least two removable and reinsertable accessible embedded storage members which are generally rectangular in shape.

27 The portable card of claim 23 wherein said substrate encloses at least three removable and reinsertable accessible embedded storage members which are generally rectangular in shape

28. The portable card of claim 23 wherein said substrate has two opposing surfaces and one of said two opposing surfaces includes an integrated circuit located thereon.

29. The portable card of claim 23 wherein said data processing station includes a transducer.

30. The portable card of claim 23 wherein said at least one layer of storage material is a magnetic medium and said transducer is an inductive head.

31. The portable card of claim 23 wherein said at least one layer storage material is a magnetic medium and said transducer is a thin film head.

32. The portable card of claim 23 wherein said at least one layer storage material is a magnetic-optical medium and said transducer is a magnetoresistive head.

33. The portable card of claim 23 wherein said at least one layer storage material is a magnetic medium and said transducer is a giant magnetoresistive (GMR) head.

34. The portable card of claim 30 wherein said at least one layer layer of magnetic material has a predetermined magnetic field orientation that is substantially perpendicular to a data processing station.

35. The portable card of claim 30 wherein said at least one layer of magnetic material has a predetermined magnetic field orientation that is substantially parallel to a data processing station.

36. The portable card of claim 30 wherein said at least one layer of magnetic material has a predetermined magnetic field orientation that is at an acute angle to a data processing station.

37. The portable card of claim 30 wherein said magnetic medium is at least one thin film layer of high density, high coercivity magnetic material is a sputtered layer.

38. The portable card of claim 37 wherein said magnetic medium is least one thin film layer of high density, high coercivity magnetic material is a platted layer.

39. The portable card of claim 30 wherein said at least one thin film layer of high density, high coercivity magnetic material is an oxide layer.

40. The portable card of claim 31 wherein said at least one thin film layer of high density, high coercivity magnetic material is a web coated layer.

41. A card and card writer/reader system comprising

an encodeable card having

a body having upper and lower surfaces, a hollowed-out central area and side and end edges, said body including in said hollowed-out central area for enclosing an accessible embedded storage member having at least one layer of storage material for storing information, said storage member and said body being adapted to be transported relative to each other and to a data processing station to expose at least a portion said storage member to facilitate processing of stored information by a data processing station and for embedment of said storage member within said substrate; and

a writer/reader having a transducer for at least one of writing encoding signals in said storage member and reading encoded signals from said storage member during relative movement of said body relative to said data processing station to enable data flow between said storage member and said transducer.

42. The card and card writer/reader system of claim 41 further comprising

a removal and reinsertion member adapted to cooperate with said body to at least partially remove said embedded storage member from said body to facilitate processing of stored information by a data processing station and to reinsert said storage member into said hollowed-out central area for embedment of said storage member within said body.

43. The card and card writer/reader system of claim 41 wherein said removal and reinsertion member includes

a stationary member for urging said accessible embedded storage member from said hollowed-out central area to position a portion of said storage member so as to extend slightly beyond at least one of the side and end edges of said body; and

a positioning member for removeably engaging and transporting said accessible embedded storage member a predetermined distance out of said hollowed-out area to facilitate processing of the stored information on the storage member by a processing station.

44. The card and card writer/reader system of claim 43 wherein said positioning member is adapted to transport and reinsert said accessible embedded storage into said hollowed-out area for embedment of said storage member within said body.

45. The card and card reader system of claim 41 wherein said transducer is an inductive head.

46. The card and card reader system of claim 41 wherein said transducer is a thin film head.

47. The card and card reader system of claim 41 wherein said transducer is a magnetoresistive head.

48. The card and card reader system of claim 41 wherein said transducer is a giant magnetoresistive (GMR) head.

49. The card and card writer/reader system of claim 47 wherein said magnetoresistive head includes a dual stripe magnetoresistive element.

50. The card and card reader system of claim 41 wherein said storage member has at least one layer of high density, magnetic material which is capable of reading and storing data as magnetic signals.

51. The card and card reader system of claim 41 wherein said storage member has at least one layer of high density, optical recording material which is capable of reading and storing data in optical form.

52. The card and card reader system of claim 51 wherein said transducer is a laser adapted to reading and record optical data on said optical recording material.

53. The card and card reader system of claim 41 wherein said storage member has at least one layer of high density, magneto-optical recording material which is capable of reading and storing data.

54. A card and card writer/reader system comprising

an encodeable card having

a substrate having upper and lower surfaces, at least one hollowed-out central area and side and end edges, said body including in said at least one hollowed-out central area for enclosing an accessible embedded storage member having at least one layer of storage material for storing information, said body being adapted to be transported relative to and to interact with a data processing station and wherein said substrate and said storage member are adapted to be moved relative to each other at said data processing station to expose at least a portion said storage member to facilitate processing of stored information by the data processing station and for embedment of said storage member within said substrate;

a first transducer for reading the stored information from said storage member during relative movement of said substrate card relative to the data processing station to enable data flow between said storage member and said first transducer; and

a second transducer for writing in said storage member stored information during relative movement of said substrate relative to the data processing station to enable data flow between said data storage device and said second transducer.

55. The card and card writer/reader system of claim 54 wherein said storage member includes

at least one thin film layer of high density, high coercivity magnetic material having a predetermined magnetic field orientation for storing data; and

a diamond-like hardness, abradeable protective coating formed on said thin film magnetic material layer and being selected to have a thickness between a maximum thickness which would materially attenuate magnetic signals passing between said magnetic material layer and a transducer and a minimum thickness enabling said protective coating to be abraded by usage in an ambient natural atmosphere operating environment for removing therefrom a known quantity of the protective coating.

56. A method for reading a card with a card reader comprising the steps of

moving a portable card and a data processing station relative to each other wherein said portable card includes a substrate enclosing an accessible embedded storage member having at least one layer of storage material for storing information; and

transporting storage member and said substrate relative to each other to expose at least a portion said storage member to facilitate processing of stored information by a data processing station.

57. The method of claim 56 further comprising the step of embeding said storage member within said substrate.

58. The method of claim 56 wherein said step of moving includes using a transducer that is an inductive head.

59. The method of claim 56 wherein said step of moving includes using a transducer that is a thin film head.

60. The method of claim 56 wherein said step of moving includes using a transducer that is a magnetoresistive head.

61. The method of claim 56 wherein said step of moving includes using a transducer that is a giant magnetoresistive (GMR) head.

62. The method of claim 56 wherein the step of moving includes a substrate enclosing a storage member having at least one thin film layer of high density, magnetic material which is capable of reading and storing data as magnetic signals.

63. The method of claim 56 wherein the step of moving includes a substrate enclosing a storage member having at least one thin film layer of high density, optical recording material which is capable of reading and storing data in optical form.

64. The method of claim 56 wherein the step of forming includes a substrate enclosing a storage member having at least one thin film layer of high density, magneto-optical recording material which is capable of reading and storing data in magneto-optical form.

65. The method of claim 64 wherein the step of moving includes using a transducer which is a laser adapted to read and record optical data on said optical recording material.

66. A data storage device comprising

a substrate; and

an accessible embedded storage member having a predetermined shape, said storage member having at least one layer of storage material for storing information enclosed by said substrate, said storage member and said substrate being adapted to be transported relative to each other to expose at least a portion said storage member to facilitate processing of stored information.

67. The data storage device of claim 66 wherein said storage member and said substrate are adapted to be transported relative to each other for embedment of said storage member within said substrate.

68. The data storage device of claim 66 wherein said storage member includes at least one layer of high density, high coercivity magnetic material for storing data.

69. The data storage device of claim 68 wherein said storage member includes

a relatively hard, abradeable protective coating formed on said magnetic material layer and being selected to have a thickness between a maximum thickness which would materially attenuate magnetic signals passing between said magnetic material layer and a transducer and a minimum thickness enabling said protective coating to be abraded by usage in an ambient natural atmosphere operating environment for removing therefrom a known quantity of said protective coating material.

70. The data storage device of claim 69 wherein the magnetic material layer is formed of a substantially isotropic material.

71. The data storage device of claim 70 wherein the isotropic material is a magnetic thin film alloy including platinum.

72. The data storage device of claim 69 wherein the magnetic material is formed of an anisotropic material.

73. A magnetically encoded card comprising

a substrate having a predetermined shape; and

an accessible embedded storage member having at least one layer of magnetic recording material for storing information enclosed by said substrate, said storage member and said substrate being adapted to be transported relative to each other to expose at least a portion said storage member to facilitate processing of stored information by a transducer and for embedment of said storage member within said substrate.

74. The magnetically encoded card of claim 73 further comprising

a relatively hard, bendable, abradeable protective coating formed on said at least one layer of magnetic material and being selected to have a thickness between a maximum thickness which would materially attenuate magnetic signals passing between said magnetic material layer and a transducer and a minimum thickness enabling said protective coating to be abraded by usage in an ambient natural atmosphere operating environment for removing therefrom a known quantity of the protective coating.

75. The magnetically encoded card of claim 74 wherein said protective coating includes a magnetically permeable, magnetically saturable material as an independent layer disposed on said substrate.

76. The magnetically encoded card of claim 75 wherein said protective coating includes a non-magnetic friction resisting material as a separate layer disposed on said magnetically permeable, magnetically saturable material.

77. A magnetic signal processing apparatus comprising

a portable card comprising

a substrate having a predetermined shape; and

an accessible embedded storage member having at least one layer of high density magnetically coercive material for storing magnetic signals with the coercive material axes of magnetization oriented in a predetermined direction enclosed by said substrate, said storage member and said substrate being adapted to be transported relative to each other to expose at least a portion said storage member to facilitate processing of stored information by a transducer and for embedment of said storage member within said substrate;

a non-magnetic material disposed on said high density magnetically coercive material for defining a exchange break layer;

a bendable, relative hard, protective coating including a magnetically permeable, magnetically saturable material disposed on said exchange break layer and being responsive through said exchange break layer to the coercive material axes of magnetization to produce a magnetic image field in a direction opposite to said predetermined direction, said protective coating being selected to have a thickness between a maximum thickness which would materially attenuate magnetic signals passing between said magnetic material layer and a transducer and a minimum thickness enabling said protective coating to be abraded by usage in an ambient natural atmosphere operating environment for

removing therefrom a known quantity of the protective coating;

a magnetic transducer positioned relative to a surface of said recording medium for transferring signals with respect to the storage member;

a drive member operatively coupled to at least one of said magnetic transducer and said card to provide relative movement therebetween; and

a removal and reinsertion member adapted to cooperate with said substrate to at least partially remove said embedded storage member from said substrate to facilitate processing of stored information by a transducer and to reinsert said storage member into said substrate for embedment of said storage member within said card.

78. A system comprising

a portable card comprising

a substrate having a predetermined shape; and

an accessible embedded storage member having at least one layer of storage material for storing information enclosed by said substrate, said storage member and said substrate being adapted to be transported relative to each other to expose at least a portion said storage member to facilitate processing of stored information and for embedment of said storage member within said substrate; and

a writer/reader having a transducer for at least one of writing encoding signals in said storage member and reading encoded signals from said storage member during relative movement of said body relative to said data processing station to enable data flow between said storage member and said transducer.

79. The system of claim 78 further comprising

a removal and reinsertion member adapted to cooperate with said substrate to at least partially remove said embedded storage member from said substrate to facilitate processing of stored information by a data processing station and to reinsert said storage member into said substrate for embedment of said storage member within said card.

80. The system of claim 78 wherein said portable card includes a magnetically encoded storage member.

81. The system of claim 78 wherein said portable card includes an optically encoded storage member.

82. The system of claim 78 wherein said portable card includes a magnetic-optically encoded storage member.

83. A portable card swiping device comprising

an elongated member having a wedge shaped end adapted to be inserted between and moving a first layer and a second layer of a substrate wherein said substrate has first layer and a second layer each having an obverse side and a converse side operatively coupled to each other with the obverse side of said first layer positioned in an opposed relationship from the converse side of said second layer enabling at least a portion of said first layer to be moveable relative to said second layer and wherein a storage member is located on at least one of the obverse side of said first layer and converse side of said second layer; and

at least one transducer positioned in said wedged-shaped end and positioned to swipe the stored information as said wedge-shaped ends moves at least a portion of said first layer relative to said second layer .

84. The portable card swiping device of claim 83 wherein said storage member includes at least one layer of magnetic material having the storing the information as magnetic signals and wherein said transducer is a magnetic transducer.

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